



**BA 513/STA 234: Ph.D. Seminar on [Choice Theory](#)
Professor Robert Nau**

Criticism of rational choice theory in political science—and more generally

- a. Chapters 1-5 from *Pathologies of Rational Choice Theory* by Donald Green and Ian Shapiro
- b. Selected articles from *The Rational Choice Controversy: Economic Models of Politics Reconsidered*, edited by Jeffrey Friedman
- c. “Excerpts from *Lifting the Curse of Dimensionality: Computational Modelling in the Social Sciences*, by Scott de Marchi, forthcoming from Cambridge University Press.

Guide to the readings:

- a. Chapters 1-5 from *Pathologies of Rational Choice Theory* by Donald Green and Ian Shapiro

Criticism of rational choice theory is not a new pastime—early rumblings can be heard in Stigler’s 1950 commentary on the marginalist economists of the late 1800’s, in Herbert Simon’s writings on administrative behavior and bounded rationality in the 1940’s and 1950’s (and a good deal of later work by Simon and March), in Poundstone’s account of the history of game theory in the 1950’s in *Prisoner’s Dilemma*, and even in Luce and Raiffa’s *Games and Decisions*.¹ Empirical questions about the fundamental assumptions of rational choice theory have been raised by Allais, Ellsberg, Tversky and Kahneman, and numerous behavioral researchers; while questions about the logical consistency of the foundations were raised in the papers by Shafer and Sugden that we discussed earlier. More strident forms of rational choice bashing can be found in Mirowski’s *More Heat than Light*, which portrays all of neoclassical economics as a product of misguided “physics envy,” and in the papers of Kadane and Larkey, who refer to game theory as “cumulatively useless.” But the 1994 book by Green and Shapiro raised rational choice bashing to a new level. Their book is ostensibly about applications of rational choice theory in American politics, but insofar as it addresses “characteristic methodological pathologies,” it can be interpreted to apply to rational choice applications more generally. Their claim is that rational choice theory has not yielded *empirically useful* results to date, and the reasons why it has not done so are systematic: applications are “theory driven” rather than “problem driven.” The following passage (pp. 6-7) summarizes their argument:

¹ “[W]e have the historical fact that many social scientists have become disillusioned with game theory. Initially there was a naïve band-wagon feeling that game theory solved innumerable problems of sociology and economics, or that, at least, it made their solution a practical matter of a few years’ work. This has not turned out to be the case.” (1957, p. 10)

“We contend that much of the fanfare with which the rational choice approach has been heralded in political science must be seen as premature once the question is asked: What has this literature contributed to our understanding of politics? We do not dispute that theoretical models of immense and increasing sophistication have been produced by practitioners of rational choice theory, but in our view the case has yet to be made that these models have advanced our understanding of how politics works in the real world. To date, a large proportion of the theoretical conjectures of rational choice theorists have not been tested empirically. Those tests that have been undertaken have either failed on their own terms or garnered theoretical support for propositions that, on reflection, can only be characterized as banal: they do little more than restate existing knowledge in rational choice terminology.

The discrepancy between the faith that practitioners place in rational choice theory and its failure to deliver empirically warrants closer inspection of rational choice theorizing as a scientific enterprise. In our view, the weaknesses of rational choice scholarship are rooted in the characteristic aspiration of rational choice theorists to come up with universal theories of politics. This aspiration leads many rational choice theorists to pursue ever more subtle forms of theory elaboration, with little attention to how these theories might be operationalized and tested—even in principle. When systematic empirical work is attempted by rational choice theorists, it is typically marred by a series of characteristic lapses that are traceable to the universalist ambitions that rational choice theorists mistakenly regard as the hallmark of good scientific practice. These pathologies manifest themselves at each stage of theory elaboration and empirical testing.

Hypotheses are formulated in empirically intractable ways; evidence is selected and tested in a biased fashion; conclusions are drawn without serious attention to competing explanations; empirical anomalies and discordant facts are often either ignored or circumvented by way of post hoc alterations to deductive arguments. Collectively, the methodological defects of rational choice theorizing that we discuss in this book generate and reinforce a debilitating syndrome in which theories are elaborated and modified in order to save their universal character, rather than by reference to the requirements of viable empirical testing. When this syndrome is at work, data no longer test theories; instead, theories continually impeach and elude data. In short, empirical research becomes theory driven rather than problem driven, designed more to save or vindicate some variant of rational choice theory than to account for any specific set of political phenomena.

The upshot is that, valid as the rational choice criticisms of other modes of political science might be, rational choice scholarship has yet to get off the ground as a rigorous empirical enterprise.”

These are fighting words. (Indeed, much of the uproar surrounding the book seems to have been motivated as much by its confrontational tone as by its substance.) Green and Shapiro go on to enumerate the cardinal sins of which they find rational choice theorists to be guilty: *post hoc theory development* (“a thought experiment designed to generate an explanation of a given phenomenon that is consistent with rational choice assumptions, somehow specified”), *slippery or vaguely operationalized predictions* (introducing unmeasurable latent constructs to explain

aberrations, shifting from point predictions to marginal predictions, etc.), *fishing for confirming evidence* (while ignoring disconfirming evidence), *projecting evidence from theory* (“imagining a datum consistent with economic logic”), and *arbitrary domain restrictions* (“draining lakes that contain problematic data”).

Later chapters in the book deal with particular kinds of political phenomena to which rational choice models have been applied. Chapter 4 deals with the paradox of voting—i.e., why would rational agents exert a finite effort to vote when the expected benefit is infinitesimal? Simple rational choice models of the voting problem predict that voter turnout should converge to (almost) zero, whereas voter turnout is usually significant. (Indeed, it appears that about half the population consists of habitual voters and the other half consists of habitual non-voters, just as subjects in prisoner’s-dilemma experiments tend to be either habitual cooperators or habitual defectors.) Friedman (in the follow-up book) summarizes this chapter as follows: “In Green and Shapiro’s estimation... rational choice theory only avoids falsification by the phenomenon of voting by being either arbitrarily restricted to other domains [where stakes are higher] or modified beyond recognition [by bolstering utility functions with attributes of civic obligation]”. Chapter 5 deals with more general kinds of social dilemma problems, including the 2-person and n-person prisoner’s dilemma. Again, the obvious empirical fact is that economic agents are more civic-minded (they are more likely to cooperate and less likely to free-ride) than rational choice models say they ought to be. Friedman notes: “According to Green and Shapiro, rational choice scholars avoid this problem by discussing only confirming evidence for their theory or by comparing it only to unchallenging null hypotheses.”

What do Green and Shapiro recommend instead? They suggest that, rather than engaging in armchair speculation and the post hoc development of models that explain stylized facts winnowed from aggregate survey data, researchers should engage in closer-to-the-ground empirical research that tracks the behavior of real *individuals* and which systematically tests for the effects of different costs and benefits on the decision making behavior of those individuals. Moreover, such studies should test rational choice models against *credible* null hypotheses, based on the best alternative explanations—including “normative, cultural, psychological, and institutional” theories—rather than straw men such as “random” behavior. They admit that “Designing and conducting this sort of research is likely to be arduous.”

b. Selected articles from *The Rational Choice Controversy: Economic Models of Politics Reconsidered*, edited by Jeffrey Friedman

This follow-up volume (also published by Yale University Press) contains a series of comments and rebuttals by 13 other scholars that were originally published as a double issue of the journal *Critical Review* in 1995, together with an introduction by the editor of the journal (Friedman) and a rejoinder by Green and Shapiro. I have selected a few of these articles that appear to me to summarize the most authoritative and/or interesting responses.

Ferejohn and Satz aim for the moral high ground, defending the “universalist” aspirations of rational choice theory (or at least the “partial universalist” strain) on the grounds that all human behavior is *intentional*, essentially the same viewpoint that is expressed in Elster’s 1986 paper.

“In our view, the requirement that social explanations be compatible with intentional explanation constrains what counts as good social science. Because society is composed of human beings, social science explanations have to be compatible with psychological processes. This means both that it is physically possible for people to act as the social science explanation requires, and to hold or form the relevant beliefs and desires. There is no escape from the need to attribute some form of rationality to human agents: none of Green and Shapiro’s preferred explanatory styles obviate this necessity... The aspiration to unity and the quest for universalistic explanation have spurred progress in every science. By ruling out universalism on philosophical grounds, Green and Shapiro surrender the explanatory aspirations of social science. Such a surrender is both premature and self-defeating. And, insofar as intentionality is itself a ground for universalism, it is also unwarranted.” They also argue that rational choice theory is a broad “field of endeavor,” like all of physics or all of biology, with room for disagreements and border disputes.

Fiorina gets down in the trenches, emphasizing that he has been “working in the vineyards of political science for 25 years, [and] the bulk of that work is empirical.” From his vantage point, “the Rational Choice research program has made major empirical contributions. How could it have prospered otherwise? Are we to believe that Rational Choice scholars have snookered everyone else in the discipline except for a few clear thinkers like Green and Shapiro? ... The negative verdict reached by Green and Shapiro reflects an excessively restrictive view of scientific research. Careful statistical tests of precisely formulated hypotheses are one kind of empirical contribution, but not the only kind. Moreover, however accurate Green and Shapiro’s observations about the abstract scientific failings of Rational Choice theory, a moment’s reflections suggests that such failings are common to all political research—indeed, to all of scientific research.” He points out that the proponents of the structuralist-functionalist, group-theory, and systems-theory research programs that were displaced by rational choice theory were no less universalistic in their ambitions. Meanwhile, natural scientists are often guilty of the same sins of post hoc theorizing, selective interpretation of evidence, etc., that Green and Shapiro are “shocked” to observe among rational choice theorists. And while he agrees with some of the complaints made by Green and Shapiro about particular models, he cites other work that hews to a more rigorous empirical standard.

Murphy’s paper is not a rebuttal to Green and Shapiro. Rather, Murphy argues (in the spirit of Mirowski) that Green and Shapiro do not go far enough in attacking the common “pathologies of equilibrium analysis” that also pervade other branches of “social physics” such as economics and biology as well as political science. He writes: “What strikes Green and Shapiro as an overweening aspiration for a universal theory of politics seems more understandable if the enterprise is really social physics. Seeing rational choice theory as social physics helps account for the paradox that the prestige of equilibrium models in political science does not depend on the empirical success in political science (nor even in economics). Rational choice theory borrows its prestige from the theoretical, empirical, and technological successes of classical mechanics. When rational choice theorists appeal to explanatory success in evolutionary biology or in microeconomics to defend equilibrium analysis, what they are really appealing to is no biological theory or economic theory per se, but rather the deployment of physics by those disciplines.” He points out that these equilibrium theories based on pre-entropic physics seem to have as their objective the elimination of *history* from the explanation of the phenomena under

consideration. Instead, everything that is observed is imagined to be the inevitable solution to a problem of optimal design. This approach has been strongly criticized in evolutionary biology by Stephen Jay Gould, among others. Later, Murphy observes:

“Attempts to modify equilibrium analysis in rational choice theories have been largely comic: if we find that people are ignorant, then ignorance is optimally rational, given the costs of information; if we find that people are impulsive and passionate, then passion and impulse are optimally rational, given the costs of deliberation; if we find that people act out of habit, then habits are optimal decision strategies given the costs of thought; and so on. The auxiliary theorems modify rational choice theory in the sense that a cat is modified by the mouse it eats.”

I must confess, I like this paper. It begs the question: if social science is going to imitate physics and biology, why does it imitate *19th century* physics and biology? Why doesn't it seek analogs of more modern concepts such as the uncertainty principle, the entropy law, contingent evolution, and nonlinear dynamics? (Actually, some people have done that, but they are largely outside of the rational choice camp. We will consider some of that work a couple of weeks hence.)

Ordeshook's paper aims for a different kind of high ground, namely that rational choice theory should be viewed as a “science” for the which the “engineering” remains to be worked out. He writes:

“Green and Shapiro's critique, though sometimes incomplete and inaccurate, nevertheless seems to be largely correct: the substantive relevance of much formal rational choice analysis is tenuous, and its empirical content lacks coherence. Even the treatment of such basic matters as voting, committee agendas, and spatial conceptualizations of preferences are confounded by dubious assumptions and often wholly irrelevant analyses. However, the remedies Green and Shapiro offer are no more likely to move use toward a useful understanding of politics than is the vast majority of research found in the current political science literature, regardless of the paradigm to which that literature corresponds.

The core of my argument is this: Green and Shapiro, rational choice analysts, and most other political scientists fail to distinguish between science and engineering—that is, between the discovery of first principles and the identification of the empirical generalities to which they pertain on the one hand; and, on the other, the resolution of practical issues. Too many rational choice researchers try to do science when engineering better describes their goal. The failure to make this distinction leads to research that does not identify first principles, isolate empirical phenomena that warrant empirical generalization, delineate phenomena that are manifestations of complex interdependent processes, develop expertise that has practical relevance, or refine our ability to predict something other than gross or trivial events.”

Rational choice theory searches for first principles, and “it is incorrect to insist that our analytical explorations should have an immediate empirical payoff.” Ordeshook goes on to contrast the

work of an engineer who must build a bridge with that of a natural scientist who develops basic theory. Later he re-examines the problem of the voting decision, arguing that rational choice models do provide non-trivial insights in races with 3 or more candidates. His concluding section on “disincentives to learning” is remarkably candid, providing a rational choice explanation of why rational choice theory (and much academic activity in general) is characteristically method-driven rather than problem-driven:

“... Green and Shapiro’s demand for ‘relevance’ will fall on deaf ears until incentives change. Indeed, rational choice theory itself tells us that behavior does not change unless incentives change, which requires that the basis of our professional rewards—tenure, salary, and prestige—must change first. This is a tall order, and requires among things that journal editors become less tolerant of manuscripts that merely mimic some naïve view of scientific inquiry and more tolerant of those that propose solutions to specific problems. Such proposals need not be relegated to the op-ed pages or CNN. They need to appear in traditional academic journals and be subject to the same academic refinement now devoted to purely mathematical and methodological treatises.”

By the way, Ordeshook is one of the pioneers of game theoretic methods in political science, and he has written two books that give an accessible introduction to the subject. The preface to his 1986 book contains one of my all-time favorite quotes:

“We must all realize that the days are gone in which political scientists could study their craft while relaxing in a comfortable easy chair. Like our colleagues in science, engineering, and economics, we must now study political theory and the cutting edge of our discipline *while sitting at a desk.*” [emphasis added]

Shepsle, in his contribution, portrays rational choice theory as a field at the “mid-life crisis stage.” He finds Green and Shapiro’s book to be “confrontational, and ultimately unconstructive. Although it certainly does not contain inflammatory language, emotional rhetoric, or unsubstantiated charges, it is based (in this reader’s opinion) on an immature account of how to do science—a statistical view that is rigid and mechanical.” Among the faults he finds with the book is the lack of a sufficiently specific alternative to rational choice theory:

“A long time ago, when I took philosophy of science in graduate school, I remember reading or hearing about the first law of wing walking. Simply stated, it advises: ‘Don’t let go of something until you have something else to hold on to.’”

To which **Green and Shapiro** deliver the following riposte:

“Shepsle’s appeal to the first law of wing walking would be easier to take seriously if one could develop a degree of confidence that the aircraft in question were indeed airborne.”